Delayed presentation of iliopsoas abscess from ureterosigmoidostomy stump fistulization 30 years following nephrectomy

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Although rarely used today for supravesical urinary diversion, ureterosigmoidostomy was commonly utilized in patients with bladder exstrophy. We report an unusual case of iliopsoas abscess developing 30 years after an ipsilateral nephrectomy in a patient with bladder exstrophy who had undergone ureterosigmoidostomy for urinary diversion more than 50 years prior. The etiology appeared to be persistent ureteral reflux and fistulization from a patent ureterosigmoidostomy stump. After percutaneous drainage of the abscess and intravenous antibiotic therapy, the patient was managed with complete excision of the ureterosigmoid anastomoses and creation of an ileal conduit urinary diversion.

Key Words: ureterosigmoidostomy, iliopsoas abscess, fistula, exstrophy

Introduction

The ureterosigmoidostomy urinary diversion enables the continent excretion of urine by means of rectal evacuation. This approach has now been largely abandoned because of the complications associated with the mingling of the fecal and urinary streams, including hyperchloremic metabolic acidosis, hypokalemia with nephropathy, pyelonephritis, and rectal incontinence.[1] In addition, the risk of malignancy at the ureterointestinal anastamosis has discouraged its use, particularly for benign urinary tract diseases in children.[2] Although uncommon in contemporary practice, strict surveillance is warranted in patients with a history of ureterosigmoid urinary diversion and urologists must be familiar with these potential complications and their management.

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Case

A 77-year-old male with a history of classic bladder exstrophy presented to emergency room with right hip and thigh pain, anorexia, and progressive weakness over a 2 week period. Surgical history included cystectomy with bilateral ureterosigmoidostomy urinary diversions performed during his mid-twenties. After multiple bouts of pyelonephritis over the following two decades, a simple right nephrectomy was performed for a chronically infected, atrophic right kidney approximately 30 years ago.

Physical examination revealed right hip pain with flexion and a benign abdomen. Although afebrile and hemodynamically stable, laboratory results were remarkable for a white blood cell count of 17,400 cells/l, creatinine of 2.7 mg/dl, anion gap of 17, bicarbonate of 12 mEq/l, and chloride of 113 mEq/l. A non-contrast computerized tomography (CT) scan of abdomen and pelvis demonstrated a 6.5 cm x 5.5 cm right iliopsoas abscess, Figure 1, arising from a sinus tract communicating from the sigmoid colon into the collection via the patent right ureterosigmoidostomy stump, Figure 2a, 2b. Left intrarenal gas locules were present representing refluxed gas from the bowel with no evidence of a left renal abscess.

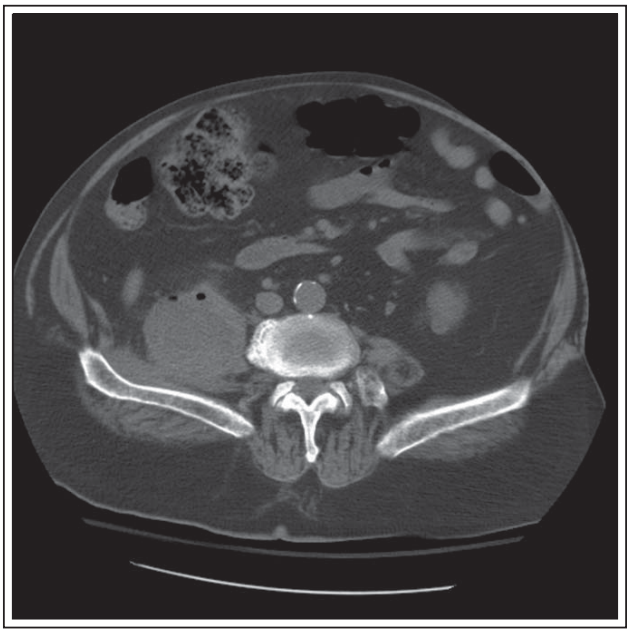

Figure 1. Non contrast computerized tomography scan of the abdomen demonstrating a 6.5 cm x 5.5 cm right iliopsoas abcess.

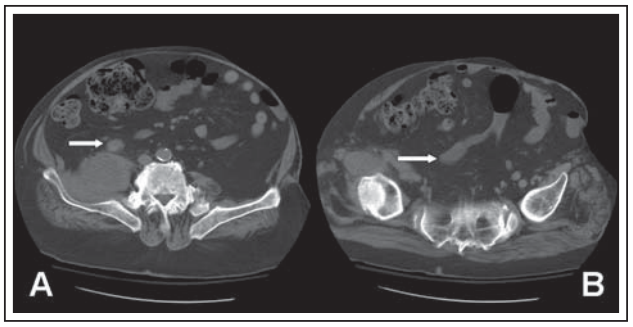

Figure 2. Patent right uretersigmoidostomy stump seen adjacent to iliopsoas abcess (A), and entering the sigmoid colon in close proximity to the left ureterosigmoidostomy anastamosis (B).

A percutaneous pigtail catheter was placed to drain the abscess, and culture of the fluid grew *Proteus mirabilis*, *Bacteroides fragilis* and *Entercoccus*. Empiric coverage with piperacillin/tazobactam was started and repeat CT scan of the abdomen with oral contrast 1 week later demonstrated resolution of the abcess. Flexible sigmoidoscopy clearly demonstrated the patent right ureterosigmoidostomy stump and no evidence for diverticular disease.

Once his infection had resolved, the patient was advised to undergo resection of the right ureteral remnant to prevent future abscess formation. He had developed increasing incontinence per rectum over the past several years and requested to have his ureterosigmoidostomy converted to an incontinent ileal conduit urinary diversion. After exploratory laparotomy and extensive takedown of adhesions, the left ureter and right ureteral stump were identified and mobilized. The left distal ureter and right ureteral stump were resected with a cuff of sigmoid colon and an ileal conduit urinary diversion was created without complication. Surgical pathology was negative for any evidence of dysplasia or malignancy, and on postoperative day number 7, the patient was discharged home after an uncomplicated hospital course with a creatinine of 1.7 gm/dl. His left ureteral diversion stent was removed 2 weeks postoperatively, and at his 3 month follow up visit, renal ultrasound was negative for hydronephrosis and the patient was without complaint.

Discussion

Continent anal urinary diversion remains a therapeutic option in select patients. Recent modifications to the classic ureterosigmoidostomy have been described, such as detubularization and creation of a spherical

bowel configuration, which have resulted in improved continence rates and decreased complication rates in small series.[3] To ensure that only appropriate candidates are selected, several exclusion criteria for ureterosigmoidostomy have been advocated, including preoperative renal insufficiency, previous extensive pelvic irradiation, dilated ureters, an incompetent anal sphincter, and colon disease.[4]

Interposition of the bowel into the urinary tract is associated with bacteriuria, bacteremia, recurrent urinary tracts infections and fecal or urinary fistulae. Takasaki et al reviewed 60 patients who had undergone ureterosigmoidostomy diversion and found that 31% developed fever due to pyelonephritis within a year of surgery.[5] Urinary or fecal fistula occurred in 17% patients in the early postoperative period, half of which were treated conservatively, while four patients progressed to immediate nephrectomy, ureterocutaneostomy, or colostomy.

While obstructive complications are not uncommon following ureterosigmoidostomy,[6] delayed fistulization of a patent ureterosigmoid stump following ipsilateral nephrectomy resulting in psoas abscess development has not been previously described. Iliopsoas abscess development has been attributed to contiguous spread from spinal tuberculosis, inflammatory or infectious bowel diseases, as well as bowel, renal, and spinal malignancies.[7] Iliopsoas abscess has also infrequently been reported as complication following ipsilateral nephrectomy, resulting from foreign body reaction, residual stone fragments, or vesicoureteral reflux through the residual ureter.[8-10] While intuitive to assume that the ureteral stump would stricture and ablate due to ischemia following nephrectomy, the present case demonstrates that persistent reflux of enteric contents can occur and may lead to ureteral stump fistula formation and retroperitoneal abscess development. Intraoperatively, a tie or clip was not present at the ureteral stump. It is assumed that the ureteral stump was tied off initially and the tie was reabsorbed. It is unclear why a psoas abscess occurred 30 years after nephrectomy. One possibility is the patient developed diverticulitis and the ureteral stump served as an egress for the infection. Due to worsening rectal incontinence over a several year period negatively affecting this patient's quality of life, incontinent urinary diversion was the preferred treatment modality rather than simple resection of the ureteral stump or cutaneous ureterostomy, in which stenosis would be a disastrous complication in the setting of a solitary kidney with impaired baseline renal function.

Although not commonly performed today, a working knowledge of the potential complications following ureterosigmoidostomy is essential to the management of these complex patients. Surveillance with flexible sigmoidoscopy should be initiated 10 years following creation of the diversion and repeated on an annual basis. Management of metabolic, obstructive, and infectious complications in these patients is challenging and a high index of clinical suspicion is essential to early diagnosis and successful therapy. □

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